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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/362,192	07/28/1999	SHUNPEI YAMAZAKI	0756-2011	6547
31780	7590	11/05/2002	EXAMINER	
ERIC ROBINSON PMB 955 21010 SOUTHBANK ST. POTOMAC FALLS, VA 20165			SIMKOVIC, VIKTOR	
		ART UNIT	PAPER NUMBER	
		2812		
DATE MAILED: 11/05/2002				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.	Applicant(s)	
09/362,192	YAMAZAKI ET AL.	
Examiner	Art Unit	
Viktor Simkovic	2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 21 October 2002.

2a) This action is **FINAL**.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 45-50,52-54,56-58,60-62,64,65 and 67-72 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 45-50,52-54,56-58,60-62,64,65 and 67-72 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) Notice of References Cited (PTO-892)  
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.

4) Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.  
5) Notice of Informal Patent Application (PTO-152)  
6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 45, 47, 60, 62, and 67-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyasaka ('819) in view of Makita et al.

Miyasaka teaches the method for manufacturing a semiconductor device comprising the steps of:

subjecting the semiconducting film to oxygen plasma, thereby forming a silicon oxide film on said semiconducting film;

crystallizing said semiconducting film to obtain a crystalline semiconducting film.

See column 24, lines 37-56. The silicon oxide film can be used as a gate insulating film.

What Miyasaka also fails to teach, however, the step of contacting a material for promoting crystallization to at least part of the semiconducting film formed over the substrate. Such a step is well known in the art and is taught by Makita et al., for example. Makita et al. teach introducing a metal catalyst into the film to promote crystallization. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine this step with the step of using oxygen plasma, as the use of a metal catalyst to promote crystallization is well known, and one of ordinary skill in the art would have known that combining such two steps, each of which enhances crystallization,

together, would further improve the overall level of crystallization. With regard to claim 47, the crystallization is done in a solid state. With regard to claims 67-72, Makita et al. teach the use of Ni, Co, Pd, Pt, Cu, Ag, Au, In, Sb, Sn, and Al as appropriate catalysts for crystallization (see column 24, line 21).

Claims 46, 49-50, 52-54, 56-58, 61, 64-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyasaka ('819) et al. in view of Makita et al. as applied to claim 45 above, and further in view of Miyasaka ('526). While Miyasaka et al. do not teach the step of crystallizing the semiconductor film with a laser light, such a step is taught by Miyasaka et al. and is in fact well known in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a laser to enhance crystallization, as lasers are well known in the art to promote crystallization. With regard to claim 49, Miyasaka et al. teach the use of helium in column 6, line 64.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Viktor Simkovic whose telephone number is 703-308-6170. The examiner can normally be reached on Mon - Fri, 9:00 - 6:00, except every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on 703-308-3325. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.



Viktor Simkovic  
October 31, 2002



John F. Niebling  
Supervisory Patent Examiner  
Technology Center 2800